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         JUN 01
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                 enhanced on STN
         JUN 26
                 NUTRACEUT and PHARMAML no longer updated
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NEWS
         JUN 29
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                 (SLART) to AB, MCLM, and TI fields
NEWS 7 JUL 09
                 PATDPAFULL adds Simultaneous Left and Right
                 Truncation (SLART) to AB, CLM, MCLM, and TI fields
NEWS 8 JUL 14 USGENE enhances coverage of patent sequence location
                 (PSL) data
NEWS 9 JUL 27 CA/CAplus enhanced with new citing references
NEWS 10 JUL 16 GBFULL adds patent backfile data to 1855
NEWS 11 JUL 21
                 USGENE adds bibliographic and sequence information
NEWS 12 JUL 28
                 EPFULL adds first-page images and applicant-cited
                 references
NEWS 13
         JUL 28
                 INPADOCDB and INPAFAMDB add Russian legal status data
NEWS 14 AUG 10
                 Time limit for inactive STN sessions doubles to 40
                 minutes
NEWS 15
         AUG 17
                 CAS REGISTRY, the Global Standard for Chemical
                 Research, Approaches 50 Millionth Registration
                 Milestone
NEWS 16
         AUG 18
                 COMPENDEX indexing changed for the Corporate Source
                 (CS) field
NEWS 17
         AUG 24
                 ENCOMPLIT/ENCOMPLIT2 reloaded and enhanced
                 CA/CAplus enhanced with legal status information for
NEWS 18 AUG 24
                 U.S. patents
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NEWS EXPRESS MAY 26 09 CURRENT WINDOWS VERSION IS V8.4, AND CURRENT DISCOVER FILE IS DATED 06 APRIL 2009.

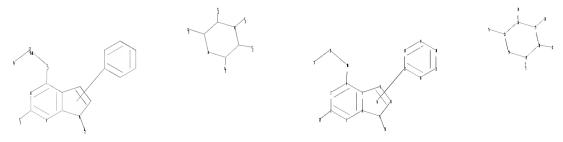
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chain nodes :

10 12 13 22 30 32 33 34 35 38

ring nodes :

1 2 3 4 5 6 7 8 9 16 17 18 19 20 21 24 25 26 27 28

chain bonds :

2-22 4-10 9-38 10-12 12-13 25-35 26-34 27-30 28-32 29-33

ring bonds :

exact/norm bonds :

 $2-22 \quad 4-10 \quad 6-9 \quad 8-9 \quad 9-38 \quad 10-12 \quad 12-13 \quad 24-29 \quad 24-25 \quad 25-26 \quad 25-35 \quad 26-27 \quad 26-34 \quad 25-26 \quad 25-$

27-28 27-30 28-29 28-32 29-33

exact bonds :

5-7 7-8

normalized bonds :

 $1-2 \quad 1-6 \quad 2-3 \quad 3-4 \quad 4-5 \quad 5-6 \quad 16-17 \quad 16-21 \quad 17-18 \quad 18-19 \quad 19-20 \quad 20-21$

isolated ring systems :

containing 1 : 16 : 24 :

G1:0, N

G2:H, CH3

Match level :

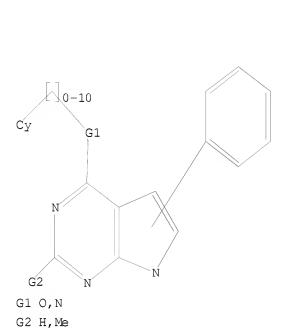
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:CLASS 12:CLASS 13:Atom 16:Atom 17:Atom 18:Atom 19:Atom 20:Atom 21:Atom 22:CLASS 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom 29:Atom 30:CLASS 32:CLASS 33:CLASS 34:CLASS 35:CLASS 36:Atom 38:CLASS

L4STRUCTURE UPLOADED

=> d

L4 HAS NO ANSWERS

L4 STR



G2 G2 N G2 G2

Structure attributes must be viewed using STN Express query preparation.

=> s 14 sam

SAMPLE SEARCH INITIATED 17:15:13 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 210 TO ITERATE

100.0% PROCESSED 210 ITERATIONS 1 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 3331 TO 5069
PROJECTED ANSWERS: 1 TO 80

L5 1 SEA SSS SAM L4

=> s 14 del 11-L1- RANGE NOT VALID L-number ranges must be in increasing order.

=> del 11-DELETE L1-L5? (Y)/N:y

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Uploading C:\Program Files\Stnexp\Queries\10597298.str

10597298

chain nodes :

10 12 13 22 30 32 33 34 35 38

ring nodes :

1 2 3 4 5 6 7 8 9 16 17 18 19 20 21 24 25 26 27 28 29

chain bonds :

2-22 4-10 9-38 10-12 12-13 25-35 26-34 27-30 28-32 29-33

ring bonds :

exact/norm bonds :

2-22 4-10 6-9 8-9 9-38 10-12 12-13 24-29 24-25 25-26 25-35 26-27 26-34

27-28 27-30 28-29 28-32 29-33

exact bonds :

5-7 7-8

normalized bonds :

 $1-2 \quad 1-6 \quad 2-3 \quad 3-4 \quad 4-5 \quad 5-6 \quad 16-17 \quad 16-21 \quad 17-18 \quad 18-19 \quad 19-20 \quad 20-21$

isolated ring systems : containing 1 : 16 : 24 :

G1:0, N

G2:H, CH3

Match level:

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:CLASS 12:CLASS 13:Atom 16:Atom 17:Atom 18:Atom 19:Atom 20:Atom 21:Atom 22:CLASS 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom 29:Atom 30:CLASS 32:CLASS 33:CLASS

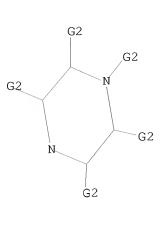
34:CLASS 35:CLASS 36:Atom 38:CLASS

L1STRUCTURE UPLOADED

=> d

L1 HAS NO ANSWERS

L1 STR 10597298



G1 O, N G2 H, Me

Structure attributes must be viewed using STN Express query preparation.

=> s 11 sam

SAMPLE SEARCH INITIATED 17:15:55 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 210 TO ITERATE

100.0% PROCESSED 210 ITERATIONS

0 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**

BATCH **COMPLETE**

PROJECTED ITERATIONS: 3331 TO 5069

PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

=> s 11 ful

THE ESTIMATED SEARCH COST FOR FILE 'REGISTRY' IS 185.40 U.S. DOLLARS DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N or END:Y FULL SEARCH INITIATED 17:16:31 FILE 'REGISTRY' FULL SCREEN SEARCH COMPLETED - 4572 TO ITERATE

100.0% PROCESSED 4572 ITERATIONS 41 ANSWERS SEARCH TIME: 00.00.01

L3 41 SEA SSS FUL L1

=> fil capl
COST IN U.S. DOLLARS

SINCE FILE TOTAL SESSION 376.08 376.30

FULL ESTIMATED COST

FILE 'CAPLUS' ENTERED AT 17:16:35 ON 24 AUG 2009
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FILE COVERS 1907 - 24 Aug 2009 VOL 151 ISS 9
FILE LAST UPDATED: 23 Aug 2009 (20090823/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Jun 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Jun 2009

CAplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2009.

CAS Information Use Policies apply and are available at:

http://www.cas.org/legal/infopolicy.html

This file contains CAS Registry Numbers for easy and accurate substance identification.

The ALL, BIB, MAX, and STD display formats in the CA/CAplus family of databases have been updated to include new citing references information. This enhancement may impact record import into database management software. For additional information, refer to NEWS 9.

=> s 13 L4 9 L3

=> d 14 ibib abs hitstr 1-9

10597298

L4 ANSWER 1 OF 9 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2009:137281 CAPLUS

DOCUMENT NUMBER: 150:389043

TITLE: A small molecule inhibitor of $\alpha 4$ integrin-dependent cell migration

AUTHOR(S): Lee, Jongkook; Hong, Jiyong; Nam, Tae-Gyu; Peters,

Eric C.; Orth, Anthony P.; Geierstanger, Bernhard H.;

Goldfinger, Lawrence E.; Ginsberg, Mark H.; Cho,

Charles Y.; Schultz, Peter G.

CORPORATE SOURCE: Department of Chemistry and the Skaggs Institute for

Chemical Biology, The Scripps Research Institute, La

Jolla, CA, 92037, USA

SOURCE: Bioorganic & Medicinal Chemistry (2009), 17(3),

977-980

CODEN: BMECEP; ISSN: 0968-0896

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal LANGUAGE: English

OTHER SOURCE(S): CASREACT 150:389043

AB A small mol. inhibitor of $\alpha 4$ integrin-dependent cell migration was identified through a cell-based screen of small mol. libraries. Biochem. and cellular expts. suggest that this mol. functions by interacting with γ -parvin. This mol. should serve as a useful tool to study $\alpha 4$

integrin signaling and may lead to new therapeutics for the treatment of autoimmune diseases.

IT 792902-82-0

RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(small mol. inhibitor of $\alpha 4$ integrin-dependent cell migration)

RN 792902-82-0 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,

 $\begin{tabular}{ll} N-(3-chlorophenyl)-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]- & (CAINDEX NAME) \end{tabular}$

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 9 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2008:353001 CAPLUS

DOCUMENT NUMBER: 148:355828

Multi-functional small molecules as anti-proliferative TITLE:

agents and their preparation

INVENTOR(S): Cai, Xiong; Qian, Changgeng; Gould, Stephen; Zhai,

Haixiao

PATENT ASSIGNEE(S): Curis, Inc., USA

PCT Int. Appl., 494pp. SOURCE:

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PA	PATENT NO.					KIND DATE				APPI	LICAT		DATE					
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											DO,							
		GB,	GD,	GE,	GH,	GM,	GT,	HN,	HR,	HU.	ID,	IL,	IN,	IS,	JP,	KE,	KG,	
											LS,							
		MG,	MK,	MN,	MW,	MX,	MY,	MZ,	NΑ,	NG,	NI,	NO,	NΖ,	OM,	PG,	PH,	PL,	
		PT,	RO,	RS,	RU,	SC,	SD,	SE,	SG,	SK	SL,	SM,	SV,	SY,	IJ,	TM,	TN,	
		TR,	TT,	TZ,	UA,	UG,	US,	UΖ,	VC,	VN,	ZA,	ZM,	ZW					
	RW:	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	DK,	EE,	ES,	FΙ,	FR,	GB,	GR,	HU,	ΙE,	
											PT,							
		ВJ,	CF,	CG,	CI,	CM,	GA,	GN,	GQ,	GW,	ML,	MR,	NE,	SN,	TD,	TG,	BW,	
		GH,	GM,	KE,	LS,	MW,	MZ,	NA,	SD,	SL	SZ,	TZ,	UG,	ZM,	ZW,	AM,	AZ,	
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CA	2662	937			A1		2008	0320		CA 2	2007-	2662	937		2	0070	910	
US	2008	0221	132		A1		2008	0911		US 2	2007-	8524.	58		2	0070	910	
EP	2061	772			A2		2009	0527		EP 2	2007-	8421	12		2	0070	910	
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KR	2009	0779	14		Α		2009	0716		KR 2	2009-	7075	73		2	0070	910	
IN	2009	DN02	146		Α		2009	0731		IN 2	2009-1	DN21	46		2	0090	331	
RIORIT	Y APP	LN.	INFO	. :						US 2	2006-	8435	90P]	P 2	0060	911	
									US 2007-895889P						P 2			
									,	WO 2	2007-1	US77	971	1	W 20070910			
THER SO	OURCE	(S):			MARPAT 148:35582				28									

OTHER SOURCE(S): MARPAT 148:355828

GΙ

AΒ The invention relates to the compns., methods, and applications of an approach to selective inhibition of several cellular or mol. targets with a single small mol. More specifically, the present invention relates to multi-functional small mols. of formula I wherein one functionality is capable of inhibiting histone deacetylases (HDAC) and the other functionality is capable of inhibiting a different cellular or mol. pathway involved in aberrant cell proliferation, differentiation or survival. Compds. of formula I wherein A is a pharmacophore of an anticancer agent capable of inhibiting at least one cellular or mol. pathway involved in the aberrant cell proliferation, differentiation or survival; B is a linker; C is a zinc-binding moiety; and their geometrical isomers, enantiomers, diastereoisomers, racemates, pharmaceutically acceptable salts, prodrugs and solvates thereof, are claimed. Example compound II was prepared by a multistep procedure (procedure given). All the invention compds. were evaluated for their antiproliferative activity (some data given).

IT 803706-07-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(intermediate; preparation of multi-functional small mols. as antiproliferative agents)

RN 803706-07-2 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,

 $\label{eq:n-phenylethyl} $$N-[(1R)-1-phenylethyl]-6-[4-(1-piperazinylmethyl)phenyl]-$$ (CA INDEX NAME)$$

Absolute stereochemistry.

OS.CITING REF COUNT: 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L4 ANSWER 3 OF 9 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2008:351928 CAPLUS

DOCUMENT NUMBER: 148:355814
TITLE: Preparation of

(aralkylamino) (phenyl) pyrrolo[2, 3-d] pyrimidine

derivatives for use as protein tyrosine kinase (PTK)

inhibitors

INVENTOR(S): Cai, Xiong; Qian, Changgeng; Gould, Stephen

PATENT ASSIGNEE(S): Curis, Inc., USA

SOURCE: PCT Int. Appl., 123pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

	PATENT NO.						KIND DATE				APPL	ICAT		DATE					
	WO	2008	0337	 45		A2 20080320			,	WO 2	007-	US77	968		2	0070	910		
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			GB,	GD,	GE,	GH,	GM,	GT,	HN,	HR,	HU,	ID,	IL,	IN,	IS,	JΡ,	ΚE,	KG,	
			KM,	KN,	KP,	KR,	KΖ,	LA,	LC,	LK,	LR,	LS,	LT,	LU,	LY,	MA,	MD,	ME,	
			MG,	MK,	MN,	MW,	MX,	MY,	ΜZ,	NA,	NG,	NΙ,	NO,	ΝZ,	OM,	PG,	PH,	PL,	
			PT,	RO,	RS,	RU,	SC,	SD,	SE,	SG,	SK,	SL,	SM,	SV,	SY,	ТJ,	TM,	TN,	
			TR,	TT,	TZ,	UA,	UG,	US,	UΖ,	VC,	VN,	ZA,	ZM,	ZW					
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PRIOR	PRIORITY APPLN. INFO.:										US 2	006-	8436	46P]	P 2	0060	911	
											US 2	007-	8958	94P]	P 2	20070320		
OTHER	OTHER SOURCE(S):						PAT	148.	3558	1 4									

OTHER SOURCE(S): MARPAT 148:355814

GΙ

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Fused bicyclic pyrimidine derivs. I and II [Ar = aryl, substituted arylheteroaryl or heteroaryl; Q = absent or (un)substituted alkyl; X = 0, S, NH, or alkylamino; Z = 0, S, NR1; Y = N or CR2; B = linker; D = C(0)NH2, NHC(S)CH3, CHC(0)NHacyl, etc.; R1 = H or (un)substituted alkyl; R2 = H, halo, (un)substituted aliphatic, aryl or heteroaryl], and their pharmaceutically acceptable salts, are prepared and disclosed as protein tyrosine kinase (PTK) inhibitors. Thus, e.g., III was prepared by N-alkylation of 1,4-dioxa-8-azaspiro[4.5]decane with 6-(4-(chloromethyl)phenyl)-N-((R)-1-phenylethyl)-7H-pyrrolo[2,3-d]pyrimidin-4-amine (preparation given) and deprotection followed by condensation with 6-aminohexanoic acid Me ester and amidation with hydroxylamine. Select I were evaluated in EGFR assays, e.g., III demonstrated an IC50 value of $\leq 0.1~(\mu M)$.

IT 803706-07-2P, N-((R)-1-Phenylethyl)-6-[4-((piperazin-1-1))]

Absolute stereochemistry.

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

ANSWER 4 OF 9 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:902897 CAPLUS

DOCUMENT NUMBER: 143:248404

Preparation of 7H-pyrrolopyrimidine derivatives for TITLE: the treating a disease which responds to an inhibition

of a protein tyrosine kinase

INVENTOR(S): Caravatti, Giorgio; Vaupel, Andrea

Novartis A.-G., Switz.; Novartis Pharma G.m.b.H. PATENT ASSIGNEE(S):

PCT Int. Appl., 54 pp. SOURCE:

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT:

PATENT INFORMATION:

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AU	2005	2128	32		A1		2005	0825		AU 2	005-	2128	32		2	0050	217	
	2553																	
EP	1718	651			A2		2006	1108		EP 2	005-	7153	76		2	0050	217	
EP	1718	651			В1		2009	0422										
	R:						ES,									MC,	PT,	
		ΙE,	SI,	LT,	FI,	RO,	CY,	TR,	BG,	CZ,	EE,	HU,	PL,	SK,	IS			
CN	1922	184			A		2007	0228		CN 2	005-	8000	5426		2	0050	217	
BR	1922 2005 2007	0078	11		A		2007	0710		BR 2	005-	7811			2	0050	217	
JP	2007	5231	15		T		2007	0816		JP 2	006-	5535	34		2	0050	217	
	4294	35			T		2009	0515	•	AT 2	005-	7153	76		2	0050	217	
	2322						2009	0629		ES 2	005-	7153	/6		2	0050	217	
	2006						2006	101/		MX Z	006-	9395	<i>C</i> 7		2	0060	81/ 017	
	2006						2006											
	2006 2007										006-							
PRIORIT:					AI		2007	0614			004-							
EVIOVII.	LAFF	Τ1Λ.	TNLO	• •														
OTHER SO		WO 2005-EP1635 W CASREACT 143:248404; MARPAT 143:248404								v1	0000	<u> </u>						

GΙ

Ι

The title compds. I [R1, R2 = H, halo, alkyl, etc.; or NR1R2 = (un)substituted N-heterocycle; Y = X(R3)n, C(R3)(R3)A (wherein X = alkyl, amino, amido, carbonyl; A = hydroxy, amino, halo, alkyl; R3 = alkyl, alkoxy, carbonyl, etc.; n = 1-2)], useful for the treatment especially of a proliferative disease, such as a tumor, were prepared and formulated. E.g., a multi-step synthesis of I [R1 = Me; R2 = Pr; Y = 4-methylpiperazin-1-ylmethyl], starting from Et 4-(4-chloro-7H-pyrrolo[2,3]pyrimidin-6-yl)benzoate, was given. The compds. I were tested against BcrAbl, c-Abl, c-Raf-1, HER-1, HER-2 and VEGF receptor (KDR). Specific data were given for representative compds. I. The invention also relates to pharmaceutical compns. comprising such derivs. I and to the use of such derivs. - alone or in combination with one or more other pharmaceutically active compds. - for the preparation of pharmaceutical compns.

IT 863306-84-7P

RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of $7\mathrm{H}\text{-pyrrolopyrimidine}$ derivs. as protein tyrosine kinase inhibitors)

RN 863306-84-7 CAPLUS

CN Methanone, [4-[4-(cyclopropylamino)-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl](4-methyl-1-piperazinyl)- (CA INDEX NAME)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 5 OF 9 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2005:823692 CAPLUS

DOCUMENT NUMBER: 143:229883

TITLE: Preparation of pyrrolopyrimidines for treating

proliferative diseases

INVENTOR(S): Caravatti, Giorgio; Traxler, Peter; Esser, Thomas; He,

Handan

PATENT ASSIGNEE(S): Novartis A.-G., Switz.; Novartis Pharma G.m.b.H.

SOURCE: PCT Int. Appl., 35 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PAT	PATENT NO.					KIND DATE				APPL	ICAT	ION I		D.	DATE						
					A2 20050818 A3 20070412				WO 2	005-	EP87	6		2	0050	128					
		CN, GE, LK, NO, TJ,	CO, GH, LR, NZ, TM,	CR, GM, LS, OM, TN,	CU, HR, LT, PG, TR,	CZ, HU, LU, PH, TT,	DE, ID, LV, PL, TZ,	AZ, DK, IL, MA, PT, UA,	DM, IN, MD, RO, UG,	DZ, IS, MG, RU, US,	EC, JP, MK, SC, UZ,	EE, KE, MN, SD, VC,	EG, KG, MW, SE, VN,	ES, KP, MX, SG, YU,	FI, KR, MZ, SK, ZA,	GB, KZ, NA, SL, ZM,	GD, LC, NI, SY, ZW,	SM			
	RW:	AZ, EE, RO,	BY, ES, SE,	KG, FI, SI,	KZ, FR, SK,	MD, GB, TR,	RU, GR, BF,	MZ, TJ, HU, BJ, EA,	TM, IE, CF,	AT, IS, CG,	BE, IT,	BG, LT,	CH, LU,	CY, MC,	CZ, NL,	DE, PL,	DK, PT,				
AU	2005										005-	2114	93		2	0050	128				
AU	2005	2114	93		В2	B2 20080807															
					A1 20050818 A2 20070117												128 128				
EP																					
	R:	IS,		LI,	LT,			DE, NL,						•							
BR	2005	0072	89 [′]	•	A		2007	0703		BR 2	005-	7289			2	0050	128				
	2007												22								
	1011																				
MX	2006	0085	71		A		2006	0828		MX 2	006-	8571	1.0		2	0060	728				
					1213								0060								
	IN 2006CN02794 IORITY APPLN. INFO.:						2007	0608		US 2	004-	5400	34P		P 2	0040	129				
THER SO						REAC	T 14	3:22	WO 2005-EP876 W 20050128 9883; MARPAT 143:229883												

$$\begin{array}{c|c} & & & & \\ & & & & \\ & & & & \\ & & \\ & & & \\ & & & \\ & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & &$$

The present invention relates to a compound I [R1 = heterocyclyl, (un)substituted aryl; G = alkylene, C(O), or alkyleneC(O) wherein the carbonyl group is attached to the piperazine moiety; Q = NH or O, with the proviso that Q = O if G = C(O) or alkyleneC(O); and X is either not present or alkylene, with the proviso that a heterocyclic radical R1 is bonded via a ring carbon atom if X is not present], which is useful for treating anti-proliferative diseases. E.g., a 2-step synthesis of (R)-II, starting from $\{6-[4-(chloromethyl)phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl\}-[(R)-1-phenylethyl]amine and N-BOC-piperazine, was given. The compds. I are effective as protein tyrosine kinase inhibitors. For example, the compds. I inhibit EGF-R tyrosine kinase activity by 50% in a concentration of from 0.0005 to 0.5 <math display="inline">\mu$ M, especially from 0.001 to 0.1 μ M.

IT 803706-07-2P

RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of pyrrolopyrimidines as protein tyrosine kinase inhibitors for treating proliferative diseases)

RN 803706-07-2 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,

N-[(1R)-1-phenylethyl]-6-[4-(1-piperazinylmethyl)phenyl]- (CA INDEX NAME)

Absolute stereochemistry.

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 6 OF 9 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2004:1060779 CAPLUS

DOCUMENT NUMBER: 142:38274

TITLE: Preparation of 7H-pyrrolo[2,3-d]pyrimidines as protein

tyrosine kinase inhibitors

INVENTOR(S): Bold, Guido; Capraro, Hans-Georg; Caravatti, Giorgio;

Traxler, Peter

PATENT ASSIGNEE(S): Novartis AG, Switz.

SOURCE: U.S. Pat. Appl. Publ., 41 pp., Cont.-in-part of U.S.

Ser. No. 485,747.

CODEN: USXXCO

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PA'	TENT	KIND DATE			-	APPL	ICAT		DATE									
	2004 7323		911				20041209 20080129		US 2004-783000						2	0040	220	
	2003		41		A1 20030220				,	WO 2	002-	EP87		20020806				
	W: AE, AG, AL,			AM,	ΑT,	ΑU,	AZ,	BA,	BB,	BG,	BR,	BY,	BZ,	CA,	CH,	CN,		
		CO,	CR,	CU,	CZ,	DE,	DK,	DM,	DZ,	EC,	ΕE,	ES,	FI,	GB,	GD,	GE,	GH,	
		HR,	HU,	ID,	IL,	IN,	IS,	JP,	ΚE,	KG,	KP,	KR,	KΖ,	LC,	LK,	LT,	LU,	
		LV,	MA,	MD,	MK,	MN,	MX,	NO,	NΖ,	OM,	PH,	PL,	PT,	RO,	RU,	SE,	SG,	
		SI,	SK,	ΤJ,	TM,	TN,	TR,	TT,	UA,	US,	UΖ,	VC,	VN,	YU,	ZA,	ZW		
	RW:	AM,	ΑZ,	BY,	KG,	KΖ,	MD,	RU,	ΤJ,	TM,	AT,	BE,	BG,	CH,	CY,	CZ,	DE,	
		DK,	EE,	ES,	FI,	FR,	GB,	GR,	ΙE,	IT,	LU,	MC,	NL,	PT,	SE,	SK,	TR	
US	US 20040242600						2004	1202		US 2	004-	4857		20040203				
US	7244	729			В2		2007	0717										
PRIORIT	PRIORITY APPLN. INFO.:								1	GB 2001-19249					A 2	0010	807	
									,	WO 2	002-	EP87	80	1	₩ 2	0020	806	
										US 2	004-	4857	47	1	A2 2	0040	203	

OTHER SOURCE(S): MARPAT 142:38274

GI

AB Title compds. [I; R1, R2 = H, (substituted) alkyl, cycloalkyl, heterocyclyl, R4Y(C:Z); R4 = (substituted) amino, heterocyclyl; Y = null, alkyl; Z = O, S, imino; R1R2N = heterocyclyl; R3 = heterocyclyl, (substituted) aryl; G = alkylene, CO, alkylenecarbonyl; Q = NH, CO; X = null, alkylene; with provisos], were prepared Thus, (3-chloro-4-fluorophenyl)-[6-[4-(4-ethylpiperazin-1-ylmethyl)phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amine (preparation outlined) inhibited the tyrosine kinase activity of HER-1, HER-2, and KDR with IC50 = 0.0031

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\mu\text{M}, 0.008 \mu\text{M}, and 0.0107 \mu\text{M}, resp.
ΙT
                                                                                                                                   497839-60-8P
                497839-52-8P
                                                                          497839-55-1P
                497839-67-5P
                                                                          497839-75-5P
                                                                                                                                   497839-81-3P
                497839-86-8P
                                                                          497839-89-1P
                                                                                                                                   497839-94-8P
                497840-00-3P
                                                                          497840-13-8P
                                                                                                                                   497840-17-2P
                497840-30-9P
                                                                          497840-32-1P
                                                                                                                                   497840-34-3P
                497840-36-5P
                                                                          497840-39-8P
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                497840-44-5P
                                                                          497840-48-9P
                                                                                                                                   497840-57-0P
                497840-62-7P
                                                                          497840-69-4P
                                                                                                                                   497840-76-3P
                497840-83-2P
                                                                          497840-85-4P
                                                                                                                                   497840-90-1P
                497840-95-6P
                                                                          497841-10-8P
                                                                                                                                   497841-13-1P
                497841-14-2P
                                                                          497841-20-0P
                                                                                                                                   497841-62-0P
                803706-06-1P
                                                                          803706-07-2P
                RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU
                 (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES
                 (Uses)
                            (claimed compound; preparation of pyrrolopyrimidines as protein tyrosine
                          kinase inhibitors)
RN
                497839-52-8 CAPLUS
CN
                7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
                N-(3-chloro-4-fluorophenyl)-6-[4-[(4-methyl-1-piperazinyl)methyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl[-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-henyl]-heny
                 (CA INDEX NAME)
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RN 497839-55-1 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-(3-chloro-4-fluorophenyl)-6-[4-[(3,5-dimethyl-1-piperazinyl)methyl]phenyl]- (CA INDEX NAME)

RN 497839-60-8 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-N-[(1R)-1-phenylethyl]- (CA
INDEX NAME)

Absolute stereochemistry.

RN 497839-67-5 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[4-[(3,5-dimethyl-1-piperazinyl)methyl]phenyl]-N-[(1R)-1-phenylethyl](CA INDEX NAME)

Absolute stereochemistry.

RN 497839-75-5 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-N-[4-(phenylmethoxy)phenyl](CA INDEX NAME)

$$\begin{array}{c} \text{Me} \\ \text{N} \\ \text{NH} \\ \text{NH} \\ \text{Ph-CH}_2-\text{O} \end{array}$$

RN 497839-81-3 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[4-[(3,5-dimethyl-1-piperazinyl)methyl]phenyl]-N-[4(phenylmethoxy)phenyl]- (CA INDEX NAME)

$$\begin{array}{c} \text{Me} \\ \text{NH} \\ \text{NH} \\ \text{Ph-CH}_2 - \text{O} \end{array}$$

RN 497839-86-8 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[3-[(4-methyl-1-piperazinyl)methyl]phenyl]-N-[(1R)-1-phenylethyl]- (CA
INDEX NAME)

Absolute stereochemistry.

RN 497839-89-1 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[3-[(3,5-dimethyl-1-piperazinyl)methyl]phenyl]-N-[(1R)-1-phenylethyl](CA INDEX NAME)

Absolute stereochemistry.

RN 497839-94-8 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-(3-chloro-4-fluorophenyl)-6-[3-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-00-3 CAPLUS
CN 1-Piperazineacetamide, 4-methyl-N-[[4-[4-[(1R)-1-phenylethyl]amino]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl]methyl]- (CA INDEX NAME)

Absolute stereochemistry.

RN 497840-13-8 CAPLUS

CN 1-Piperazineacetamide, N-[[4-[4-[(3-chloro-4-fluorophenyl)amino]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl]methyl]-4-methyl- (CA INDEX NAME)

RN 497840-17-2 CAPLUS

CN 1-Piperazineacetamide, 4-methyl-N-[[4-[4-[4-(phenylmethoxy)phenyl]amino]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl]methyl]- (CA INDEX NAME)

$$\begin{array}{c} \text{N} \\ \text{N} \\ \text{N} \\ \text{N} \\ \text{N} \\ \text{N} \\ \text{Ph-CH}_2-\text{O} \end{array}$$

RN 497840-30-9 CAPLUS

CN 1-Piperazineacetamide, 4-methyl-N-[[3-[4-[[(1R)-1-phenylethyl]amino]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl]methyl]- (CA INDEX NAME)

Absolute stereochemistry.

RN 497840-32-1 CAPLUS

CN 1-Piperazineacetamide, N-[[3-[4-[(3-chloro-4-fluorophenyl)amino]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl]methyl]-4-methyl- (CA INDEX NAME)

RN 497840-34-3 CAPLUS

CN Phenol, 2-methyl-5-[[6-[3-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497840-36-5 CAPLUS

CN Phenol, 2-methoxy-5-[[6-[3-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497840-39-8 CAPLUS

CN Phenol, 2-methyl-5-[[6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497840-41-2 CAPLUS

CN Phenol, 2-methoxy-5-[[6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497840-44-5 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(1R)-1-(4-chlorophenyl)ethyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]- (CA INDEX NAME)

Absolute stereochemistry.

RN 497840-48-9 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-(3-chlorophenyl)-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-,
hydrochloride (1:2) (CA INDEX NAME)

●2 HC1

RN 497840-57-0 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(3-chlorophenyl)methyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-62-7 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(2-chlorophenyl)methyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-69-4 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(2,5-dichlorophenyl)methyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]- (CA INDEX NAME)

RN 497840-76-3 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(3-methoxyphenyl)methyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-83-2 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(3-methylphenyl)methyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-85-4 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-1,3-benzodioxol-5-yl-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]- (CA
INDEX NAME)

RN 497840-90-1 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-(6-methoxy-3-pyridinyl)-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-95-6 CAPLUS
CN 2(1H)-Pyridinone, 5-[[6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497841-10-8 CAPLUS

CN 2(1H)-Pyridinone, 4-[[[6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]methyl]- (CA INDEX NAME)

RN 497841-13-1 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-(2-methoxy-4-pyridinyl)-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497841-14-2 CAPLUS

CN 2(1H)-Pyridinone, 4-[[6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497841-20-0 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidine, 4-[(4-fluoro-2-methyl-1H-indol-5-yl)oxy]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]- (CA INDEX NAME)

RN 497841-62-0 CAPLUS

CN Methanone, [4-[4-[(4-fluoro-2-methyl-1H-indol-5-yl)oxy]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl](4-methyl-1-piperazinyl)- (CA INDEX NAME)

RN 803706-06-1 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine, N-(1-phenylethyl)-6-[4-(1-piperazinylmethyl)phenyl]- (CA INDEX NAME)

RN 803706-07-2 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine, N-[(1R)-1-phenylethyl]-6-[4-(1-piperazinylmethyl)phenyl]- (CA INDEX NAME)

Absolute stereochemistry.

OS.CITING REF COUNT:	1	THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
		(1 CITINGS)
REFERENCE COUNT:	20	THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS
		RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 7 OF 9 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:356449 CAPLUS

DOCUMENT NUMBER: 138:368905

TITLE: Preparation of 7H-pyrrolo[2,3-d]pyrimidine derivatives

for treatment of solid tumor diseases

INVENTOR(S): Ball, Howard Ashley; Cohen, Pamela Sarah; Lee, Lucy;

Ravera, Christina Portrude

PATENT ASSIGNEE(S): Novartis AG, Switz.; Novartis Pharma Gmbh

SOURCE: PCT Int. Appl., 24 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PA'	PATENT NO.						KIND DATE				ICAT		DATE				
			-		A2 2003050 A3 2003091					WO 2	002-		20021028				
VVO	2005 W:								BA.	BB.	BG,	BR.	BY.	B7.	CA.	CH.	CN.
											EE,						
		•	•	•	•	•		•	•	•	KP,	•	•		•	•	•
		•		•	•	•	•	•	•	•	OM,	•		•	•	•	•
		SG,	SI,	SK,	TJ,	TM,	TN,	TR,	TT,	UA,	US,	UZ,	VC,	VN,	YU,	ZA,	ZW
	RW:	AM,	ΑZ,	BY,	KG,	KΖ,	MD,	RU,	ΤJ,	TM,	AT,	BE,	BG,	CH,	CY,	CZ,	DE,
		DK,	EE,	ES,	FI,	FR,	GB,	GR,	ΙE,	ΙΤ,	LU,	MC,	NL,	PT,	SE,	SK,	TR
AU	2002	3490	13		A1		2003	0512		AU 2	002-		2	0021	028		
EP	1441	736			A2		2004	0804		EP 2	002-		20021028				
	R:	ΑT,	BE,	CH,	DE,	DK,	ES,	FR,	GB,	GR,	ΙΤ,	LI,	LU,	NL,	SE,	MC,	PT,
		ΙE,	SI,	LT,	LV,	FI,	RO,	MK,	CY,	ΑL,	TR,	BG,	CZ,	EE,	SK		
JP	JP 2005507424 T						2005	0317		JP 2	003-		2	20021028			
US	2005	0038	048		A1		2005	0217		US 2	004-	4937	87		2	0040	426
PRIORIT	RIORITY APPLN. INFO.:									US 2001-340923P					20011029		
										US 2	002-	3616	55P		P 2	0020	305
								US 2002-379365P						20020509			
								WO 2	002 - 1	EP12	024	Ī	₩ 2	0021	028		

OTHER SOURCE(S): MARPAT 138:368905

GI

AB Title compds. I [wherein R1 and R2 = independently H or (un)substituted (cyclo)alkyl, heterocyclyl, or R4YCZ, with the proviso that R1 and R2 ≠ both H; or NR1R2 = heterocyclyl; R3 = heterocyclyl or (un) substituted aryl; R4 = (un) substituted amino or heterocyclyl; G = alkylene, CO, or alkylene-CO; Q = NH or O, with the proviso Q = O if G = COCO or alkylene-CO; X = absent or alkylene, with the proviso R3 = heterocyclyl if X is absent; Y = absent or alkyl; Z = O, S, or NH; or pharmaceutically acceptable salts thereof] were prepared as anticancer agents. For example, substitution of 4-(4-chloro-7H-pyrrolo[2,3-d]pyrimidin-6-yl)benzoic acid Et ester with (R)-phenethylamine in BuOH gave the benzenamine. Reduction of the ester using lithium aluminum hydride, followed by reaction with thionyl chloride in toluene afforded the chloromethyl derivative Coupling with N-methylpiperazine in the presence of K2CO3 in DMF yielded II. Thus, I are useful for the treatment of patients suffering from a solid tumor disease selected from carcinoma of the bladder, renal carcinoma, squamous cell carcinoma of the skin, head and neck cancer, especially squamous cell head and neck cancer, lung cancer, especially non small cell lung cancer (NSCLC), tumors of the gastrointestinal tract, glioma, and mesothelioma or metastases of such solid tumor diseases (no data). Also disclosed is a method of administering the title 7H-pyrrolo[2,3-d]pyrimidines over at least a three week time period on only about 40% to about 71% of the days in the time period (no data).

IT 497839-60-8P, [6-[4-[(4-Methylpiperazin-1-yl)methyl]phenyl]-7H pyrrolo[2,3-d]pyrimidin-4-yl]((R)-1-phenylethyl)amine
 497839-67-5P, [6-[4-[(3,5-Dimethylpiperazin-1-yl)methyl]phenyl]-7H pyrrolo[2,3-d]pyrimidin-4-yl]((R)-1-phenylethyl)amine
 RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU
 (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES
 (Uses)

(antitumor agent; preparation of pyrrolopyrimidines for treatment of solid

tumor diseases)
RN 497839-60-8 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-N-[(1R)-1-phenylethyl]- (CA INDEX NAME)

Absolute stereochemistry.

RN 497839-67-5 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[4-[(3,5-dimethyl-1-piperazinyl)methyl]phenyl]-N-[(1R)-1-phenylethyl](CA INDEX NAME)

Absolute stereochemistry.

OS.CITING REF COUNT: 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 8 OF 9 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 2003:133054 CAPLUS

DOCUMENT NUMBER: 138:170253
TITLE: Preparation of

4-amino-6-phenyl-pyrrolo[2,3-d]pyrimidines as protein

tyrosine kinase inhibitors

INVENTOR(S): Bold, Guido; Capraro, Hans-Georg; Caravatti, Giorgio;

Traxler, Peter

PATENT ASSIGNEE(S): Novartis AG, Switz.; Novartis Pharma G.m.b.H.

SOURCE: PCT Int. Appl., 95 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PA:	TENT I	NO.			KIN		DATE		2	APP]	LICAT		DATE				
CA	RW:	AE, CO, HR, LV, SI, AM, DK,	AG, CR, HU, MA, SK, AZ, EE,	AL, CU, ID, MD, TJ, BY, ES,	A1 AM, CZ, IL, MK, TM, KG, FI,	AT, DE, IN, MN, TN, KZ,	AU, DK, IS, MX, TR, MD, GB, 2003	AZ, DM, JP, NO, TT, RU, GR, 0220	BA, DZ, KE, NZ, UA, TJ, IE,	BB, EC, KG, OM, US, TM, IT,	2002- , BG, , EE, , KP, , UZ, , AT, , LU, 2002-	BR, ES, KR, PL, VC, BE, MC, 24538	BY, FI, KZ, PT, VN, BG, NL,	GB, LC, RO, YU, CH, PT,	CA, GD, LK, RU, ZA, CY, SE,	GE, LT, SE, ZW CZ, SK,	CN, GH, LU, SG, DE, TR
	14169			A1 20030224 B2 20050127 A1 20040512 B1 20080312]	EP 2	2002-	75843	20020806					
BR HU HU CN JP NZ RU AT ES ZA US NO MX IN US	R: 2002 2004 2004 1538 2005 4147 5308 2318 3887 2302 2004 2004 7244 2004 2004 2004 7323	AT, IE, 0118 0010 0010 0010 0010 0010 0010 001	BE, SI, 01 83 83 77 71 600 40 91 238 911	CH, LT,	DE, LV, A A2 A3 A T B2 A C2 T T3 A A1 B2 A A1 B2 A	DK, FI,	ES, RO, 2004 2005 2008 2005 2008 2004 2007 2004 2005 2005 2005 2005 2005 2005 2008	FR, MK, 0831 0928 1228 1020 0113 0910 0826 0315 0801 1101 1202 0717 0205 0217 1209 1209 0129	CY,	AL BR : HU : CN : CN : CN : CN : CN : CN : CN : CN	, IT, , TR, , 2002- 2004- 2002- 2004- 2002- 2004- 2004- 2004- 2004- 2004- 2004-	BG, 1180: 1083 8153: 5185: 5308: 1067: 7584: 271 4857: 540 1191 CN23: 7830:	CZ, 1 51 50 24 83 37 37 47	EE,	SK 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	MC, (0020 (0020 (0020 (0020 (0020 (0020 (0020 (0020 (0020 (0020 (0040 (0	806 806 806 806 806 806 806 114 203 205 206 220
	HK 1065483 US 20070161632 US 7390805 RIORITY APPLN. INFO.:						2007 2008		(GB 2	2004- 2007- 2001- 2002- 2004-	19249 EP878	9 80	1	A 2	0020	807 806

OTHER SOURCE(S): MARPAT 138:170253

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AB The title compds. I [R1, R2 = H, alkyl, cycloalkyl, etc.; or NR1R2 = heterocyclyl; R3 = heterocyclyl, (un)substituted aryl; G = alkylene, CO, alkyleneCO wherein the carbonyl group is attached to the NR1R2; Q = NH, O, with the proviso that Q = O if G = CO or alkyleneCO; X is either not present or alkylene, with the proviso that a heterocyclic radical R3 is bonded via a ring carbon if X is not present] and their salts, useful for treatment of a disease which responds to an inhibition of a protein tyrosine kinase, especially for the treatment of a proliferative disease, such as a tumor, were prepared and formulated. E.g., a 4-step synthesis of II, starting from Et 4-(4-chloro-7H-pyrrolo[2,3-d]pyrimidin-6-yl)benzoate and 3-chloro-4-fluoroaniline, was given. Compds. I were tested for their inhibition of the tyrosine kinase activity of EGF-R (HER-1), ErbB-2 (HER-2) and VEGF receptor (KDR) (data given for 21 exemplified compds.).

ΙT 497839-52-8P 497839-55-1P 497839-60-8P 497839-75-5P 497839-67-5P 497839-81-3P 497839-86-8P 497839-89-1P 497839-94-8P 497840-00-3P 497840-13-8P 497840-17-2P 497840-30-9P 497840-32-1P 497840-34-3P 497840-36-5P 497840-39-8P 497840-41-2P 497840-44-5P 497840-48-9P 497840-57-0P 497840-62-7P 497840-69-4P 497840-76-3P 497840-83-2P 497840-85-4P 497840-90-1P 497840-95-6P 497841-03-9P 497841-10-8P 497841-13-1P 497841-14-2P 497841-20-0P 497841-62-0P

RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of 4-amino-6-phenyl-pyrrolo[2,3-d]pyrimidines as protein

tyrosine kinase inhibitors)
RN 497839-52-8 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-(3-chloro-4-fluorophenyl)-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497839-55-1 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-(3-chloro-4-fluorophenyl)-6-[4-[(3,5-dimethyl-1-piperazinyl)methyl]phenyl]- (CA INDEX NAME)

RN 497839-60-8 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-N-[(1R)-1-phenylethyl]- (CA
INDEX NAME)

Absolute stereochemistry.

RN 497839-67-5 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[4-[(3,5-dimethyl-1-piperazinyl)methyl]phenyl]-N-[(1R)-1-phenylethyl](CA INDEX NAME)

Absolute stereochemistry.

RN 497839-75-5 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-N-[4-(phenylmethoxy)phenyl](CA INDEX NAME)

$$\begin{array}{c} \text{Me} \\ \text{N} \\ \text{NH} \\ \text{NH} \\ \text{Ph-CH}_2-\text{O} \end{array}$$

RN 497839-81-3 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[4-[(3,5-dimethyl-1-piperazinyl)methyl]phenyl]-N-[4(phenylmethoxy)phenyl]- (CA INDEX NAME)

$$\begin{array}{c} \text{Me} \\ \text{NH} \\ \text{NH} \\ \text{Ph-CH}_2 = \text{O} \end{array}$$

RN 497839-86-8 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[3-[(4-methyl-1-piperazinyl)methyl]phenyl]-N-[(1R)-1-phenylethyl]- (CA
INDEX NAME)

Absolute stereochemistry.

RN 497839-89-1 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
6-[3-[(3,5-dimethyl-1-piperazinyl)methyl]phenyl]-N-[(1R)-1-phenylethyl](CA INDEX NAME)

Absolute stereochemistry.

RN 497839-94-8 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-(3-chloro-4-fluorophenyl)-6-[3-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-00-3 CAPLUS

CN 1-Piperazineacetamide, 4-methyl-N-[[4-[4-[(1R)-1-phenylethyl]amino]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl]methyl]- (CA INDEX NAME)

Absolute stereochemistry.

RN 497840-13-8 CAPLUS

CN 1-Piperazineacetamide, N-[[4-[4-[(3-chloro-4-fluorophenyl)amino]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl]methyl]-4-methyl- (CA INDEX NAME)

$$\begin{array}{c} \text{O} \\ \text{H} \\ \text{NH} \\ \text{NH} \\ \text{C1} \\ \text{F} \end{array}$$

RN 497840-17-2 CAPLUS

CN 1-Piperazineacetamide, 4-methyl-N-[[4-[4-[4-(phenylmethoxy)phenyl]amino]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl]methyl]- (CA INDEX NAME)

$$\begin{array}{c} \text{Me} \\ \text{N} \\ \text{NH} \\ \text{NH} \\ \text{Ph-CH}_2-\text{O} \end{array}$$

RN 497840-30-9 CAPLUS

CN 1-Piperazineacetamide, 4-methyl-N-[[3-[4-[[(1R)-1-phenylethyl]amino]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl]methyl]- (CA INDEX NAME)

Absolute stereochemistry.

RN 497840-32-1 CAPLUS

CN 1-Piperazineacetamide, N-[[3-[4-[(3-chloro-4-fluorophenyl)amino]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl]methyl]-4-methyl- (CA INDEX NAME)

$$\begin{array}{c|c} & & & & \\ & & \\ & & & \\ & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\$$

RN 497840-34-3 CAPLUS

CN Phenol, 2-methyl-5-[[6-[3-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497840-36-5 CAPLUS

CN Phenol, 2-methoxy-5-[[6-[3-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497840-39-8 CAPLUS

CN Phenol, 2-methyl-5-[[6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497840-41-2 CAPLUS

CN Phenol, 2-methoxy-5-[[6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497840-44-5 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(1R)-1-(4-chlorophenyl)ethyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]- (CA INDEX NAME)

Absolute stereochemistry.

RN 497840-48-9 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-(3-chlorophenyl)-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-,
hydrochloride (1:2) (CA INDEX NAME)

●2 HC1

RN 497840-57-0 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(3-chlorophenyl)methyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-62-7 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(2-chlorophenyl)methyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-69-4 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(2,5-dichlorophenyl)methyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]- (CA INDEX NAME)

RN 497840-76-3 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(3-methoxyphenyl)methyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-83-2 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(3-methylphenyl)methyl]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-85-4 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-1,3-benzodioxol-5-yl-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]- (CA
INDEX NAME)

RN 497840-90-1 CAPLUS
CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-(6-methoxy-3-pyridinyl)-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497840-95-6 CAPLUS

CN 2(1H)-Pyridinone, 5-[[6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497841-03-9 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-[(2-methoxy-4-pyridiny1)methy1]-6-[4-[(4-methyl-1-piperaziny1)methyl]phenyl]- (CA INDEX NAME)

RN 497841-10-8 CAPLUS

CN 2(1H)-Pyridinone, 4-[[[6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]methyl]- (CA INDEX NAME)

RN 497841-13-1 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,
N-(2-methoxy-4-pyridinyl)-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl](CA INDEX NAME)

RN 497841-14-2 CAPLUS

CN 2(1H)-Pyridinone, 4-[[6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]-7H-pyrrolo[2,3-d]pyrimidin-4-yl]amino]- (CA INDEX NAME)

RN 497841-20-0 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidine, 4-[(4-fluoro-2-methyl-1H-indol-5-yl)oxy]-6-[4-[(4-methyl-1-piperazinyl)methyl]phenyl]- (CA INDEX NAME)

$$H$$
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RN 497841-62-0 CAPLUS

CN Methanone, [4-[4-[(4-fluoro-2-methyl-1H-indol-5-yl)oxy]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl](4-methyl-1-piperazinyl)- (CA INDEX NAME)

OS.CITING REF COUNT: 10 THERE ARE 10 CAPLUS RECORDS THAT CITE THIS

RECORD (15 CITINGS)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 9 OF 9 CAPLUS COPYRIGHT 2009 ACS on STN

ACCESSION NUMBER: 1998:147332 CAPLUS

DOCUMENT NUMBER: 128:192664

ORIGINAL REFERENCE NO.: 128:38067a,38070a

TITLE: Preparation of substituted pyrrolopyrimidines as

antitumor agents

INVENTOR(S): Traxler, Peter; Bold, Guido; Lang, Marc; Frei, Jorg PATENT ASSIGNEE(S): Novartis A.-G., Switz.; Traxler, Peter; Bold, Guido;

Lang, Marc; Frei, Jorg PCT Int. Appl., 86 pp.

SOURCE: PCT Int. Appl., 8
CODEN: PIXXD2

DOCUMENT TYPE: Patent LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PA	TENT :	NO.			KIND DA					APPLICATION NO.						DATE					
WO	WO 9807726					A1 19980226			WO 1997-EP4564						19970821						
							BA,														
		DK,	EE,	ES,	FΙ,	GB,	GE,	GH,	HU,	ΙI		IS,	JΡ,	ΚE,	KG,	KP,	KR,	ΚZ,			
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									AU 1997-42064						19970821						
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									EP 1997-940108						19970821						
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OTHER SOURCE(S): MARPAT 128:192664

GΙ

AB The title compds. [I; n = 0-3; q = 0-1; R = halo, lower alkyl, HOCH2, etc.; one of the radicals R1 and R2 = H, lower alkyl, and the other of the radicals R1 and R2 = (un)substituted Ph, amino-lower alkyl, piperidine-1-carbonyl, etc.], inhibitors of the tyrosine kinase activity of the receptor for the epidermal growth factor (EGF) and c-erbB2kinase and therefore useful as antitumor agents, were prepared and formulated. Thus, hydrogenation of 4-(3-chloroanilino)-6-formyl-7H-pyrrolo[2,3-d]pyrimidine (preparation described) with N-methylpiperazine in the presence of Raney Ni in DMPU, AcOH and MeOH afforded I [R = 3-C1; R1 = H; R2 = 4-methylpiperazin-1-ylmethyl; q = 0]. Compds. I inhibit EGF-R-PTK activity by 50% (IC50), for example in a concentration of 0.0005-1 μ M, especially

from 0.001-1 $\mu M.$ Compds. I are effective at 0.5-2 g/day when administered to a patient of a body weight of about 70 kg.

IT 203724-06-5P 203724-13-4P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(preparation of substituted pyrrolopyrimidines as antitumor agents)

RN 203724-06-5 CAPLUS

CN 7H-Pyrrolo[2,3-d]pyrimidin-4-amine,

 $\begin{tabular}{ll} N-(3-chlorophenyl)-6-[4-[[(4-methyl-1-piperazinyl)methylene]amino]phenyl]-(CA INDEX NAME) \end{tabular}$

RN 203724-13-4 CAPLUS

CN Methanone, [4-[4-[(3-chlorophenyl)amino]-7H-pyrrolo[2,3-d]pyrimidin-6-yl]phenyl](4-methyl-1-piperazinyl)- (CA INDEX NAME)

OS.CITING REF COUNT: 18 THERE ARE 18 CAPLUS RECORDS THAT CITE THIS RECORD (18 CITINGS)

REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT